

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listing of claims in the application:

Listing of Claims:

1. (Currently Amended) A tri-leaflet heart valve comprising:

an annular valve base with an inner surface defining a central orifice through which a blood flow moves from an upstream side to a downstream side;

three protruding hinges formed on the inner surface of the annular valve base and equally spaced along the inner surface of the annular valve base, each hinge comprising a convex downstream face connected to a convex upstream face by a curved ridge and a pair of concave sockets on opposite sides of the hinge; and

three leaflets arranged between adjacent hinges, each leaflet having an arcuate contour and being provided with a pair of round pivots respectively mounted inside the concave sockets of the hinges ~~and thus allowing , each of~~ leaflets ~~to rotate freely being respectively suspended between a corresponding pair of concave sockets and being freely rotatable~~ within the annular valve base;

when the leaflets are subject to a positive pressure from the blood flow, the leaflets are fully opened to allow the blood to flow through the central orifice, and when the leaflets are subject to a negative pressure, the leaflets are closed to occlude the blood flow.

2. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 1, wherein each leaflet is a fan-shaped plate with a ~~curved configuration forming a continuous and smooth solid outer surface and a smooth inner surface, each with no being devoid of sharp projections; a downstream apex; a bottom edge and side edges where the notches and round pivots a curved notch, a stop edge and the round pivot are formed between each side edge and the bottom edge.~~

3. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein the fan-shaped leaflet has a the downstream apex from which the two side edges extend, and where the side edges of adjacent leaflets tightly seal with each other when the leaflets close.

4. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein the fan-shaped leaflet has a the bottom edge forming a tight seal with the a corresponding upstream recess on the inner surface of the annular valve base when the leaflets are closed.

5. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein the a downstream surface of the protruding hinge inner surface of the annular valve base is configured to stop the rotation of the leaflet when the leaflet is opened, and maintain it at a predetermined angle and form a seal between the smooth outer surface of the leaflet and the downstream surface of the inner surface of the annular valve base.

6. (Original): The tri-leaflet heart valve as claimed in Claim 2, wherein the ridge of the protruding hinge is configured so that, when the leaflet is closed, the ridge forms a tight seal with the notches of the leaflet.